



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,226	08/20/2004	Soichiro Ogawa	50340-168	5384

7590 02/03/2009  
McDermott Will & Emery  
600 13th Street N W  
Washington, DC 20005-3096

EXAMINER
----------

SCULLY, STEVEN M

ART UNIT	PAPER NUMBER
----------	--------------

1795

MAIL DATE	DELIVERY MODE
-----------	---------------

02/03/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/505,226	<b>Applicant(s)</b> OGAWA, SOICHIRO	
	<b>Examiner</b> Steven Scully	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/20/2004, 03/18/2005, 04/06/2006</u> .                      | 6) <input type="checkbox"/> Other: _____                          |



**FUEL CELL SYSTEM AND PROTECTION METHOD THEREOF**

Examiner: Scully    S.N.: 10/505,226    Art Unit: 1795    January 26, 2009

***Election/Restrictions***

1.     The Response to Restriction Requirement filed September 4, 2008 has been found persuasive and therefore the previous restriction requirement has been withdrawn. Claims 1-17 are pending in the application.

***Claim Rejections - 35 USC § 102***

2.     The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.     Claims 1-2, 5, 7-8, 11-12 and 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshizawa et al. (US2003/0162063).

With respect to claims 1, 16 and 17, Yoshizawa et al. disclose a fuel cell system comprising a water passage and a passage for gas required to generate power, a first protection device which prevents freezing of water in the fuel cell by maintaining the temperature of the fuel cell, a second protection device which prevents freezing of water in the fuel cell by draining water in the fuel cell, and a controller functioning to select one of the first protection device and second protection device as the protection device to be

Art Unit: 1795

used when the fuel cell has stopped, and protect the fuel cell by operating the selected protection device when the fuel cell has stopped. See claim 1. Further, the controller functions to predict the restart time of the fuel cell based on past information relating to the start time of the fuel cell. See claim 15. Further, the controller functions to compute an energy required when the fuel cell is protected using the first protection device, compute an energy required when the fuel cell is protected using a second protection device, and select the one of the first protection device and second protection device which has the lesser required energy. See claim 18. Further, the controller functions to predict a variation of outside air temperature during the stop interval of the fuel cell. See claim 19.

With respect to claim 2, Yoshizawa et al. disclose estimating the shift of outside air temperature based on the time of the day. See Figure 19.

With respect to claim 5, Yoshizawa et al. disclose a sensor for detecting the outside air temperature which is used to predict variation of outside air temperature during the stop interval of the fuel cell. See [0097].

With respect to claim 6, Yoshizawa et al. disclose a sensor for detecting the outside air temperature is used to predict variation of outside air temperature. See [0097]. Therefore, it is the position of the examiner that the actual air temperature taken by the sensor is utilized in modeling the estimated outside air temperature shift.

With respect to claim 7, Yoshizawa et al. disclose estimating the restart time based on data regarding the day of the week and the time of the day. See Figure 11.

Art Unit: 1795

With respect to claim 8, Yoshizawa et al. disclose the driver inputting the restart time. See [0083].

With respect to claim 11, Yoshizawa et al. disclose detecting a remaining fuel amount and stopping the first protection device and initiating the second protection device. See claim 25.

With respect to claim 12, Yoshizawa et al. disclose detecting the oxygen concentration outside of the system to select which mode of protection to use. See Figure 28.

With respect to claim 14, Yoshizawa et al. disclose thawing water in the outer water tank at the time of the restart. See [0051].

With respect to claim 15, Yoshizawa et al. disclose a fuel cell for use in a vehicle which can be operated normally to power the vehicle. See [0040].

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1795

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being obvious over Yoshizawa et al. (US2003/0162063) as applied to claims 1-2, 5-8, 11-12 and 14-17 above, and further in view of Schwoegler (US2001/0030624).

With respect to claim 3, Yoshizawa et al. are silent regarding using the position of the system to estimate the shift of outside air temperature. However, Schwoegler discloses an individualized, location specific weather forecasting system where the latitude and longitude is used to give the current and forecasted weather for a location. See [0072]. It would have been obvious to one of ordinary skill in the art at the time of the invention to obtain current weather and a forecast for the location of the system so as to have current and future data points to use in modeling an estimation for the outside air temperature to provide more accurate estimations.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa et al. (US2003/0162063) as applied to claims 1-2, 5-8, 11-12 and 14-17 above, and further in view of Ito et al. (US4,513,808).

With respect to claim 4, Yoshizawa et al. are silent regarding the controller estimating the shift of the outside air temperature based on detected illumination. Ito et al. disclose an automobile air conditioner control system. Ito et al. recognize that the sunlight intensity on an object has an effect on the temperature in the system. See Column 7, lines 19-30. It would have been obvious to one of ordinary skill in the art at

Art Unit: 1795

the time of the invention to include the radiation of the sun in the calculation of the outside air temperature estimation because sunlight radiation is a main cause for temperature change.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa et al. (US2003/0162063) as applied to claims 1-2, 5-8, 11-12 and 14-17 above, and further in view of Bullock et al. (US2003/0082426).

With respect to claim 13, Yoshizawa et al. are silent regarding an alarm when the remaining energy amount in the system is less than a predetermined value. Bullock et al. disclose a fuel cell apparatus having a fuel management data storage where the fuel management data includes initial fuel level, the current fuel level, and a low fuel warning threshold. See [0042]. It would have been obvious to one of ordinary skill in the art to have a low fuel warning as taught by Bullock et al. because it warns the user that there is a need to replenish the fuel to maintain the output of the fuel cell.

### ***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422



Art Unit: 1795

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-17 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of U.S. Patent No. 6,955,861.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 is generic to all that is recited in claims 1, 14, 17 and 18 of U.S. Patent No. 6,955,861. That is, claims 1, 14, 17 and 18 entirely fall within the scope of claim 1 or, in other words, claim 1 is anticipated by claims 1, 14, 17 and 18 of U.S. Patent No. 6,955,861 as now further discussed. Yoshizawa et al. disclose a fuel cell system comprising a water passage and a passage for gas required to generate power, a first protection device which prevents freezing of water in the fuel cell by maintaining the temperature of the fuel cell, a second protection device which prevents freezing of water in the fuel cell by draining water in the fuel cell, and a controller functioning to select one of the first protection device and second protection device as the protection device to be used when the fuel cell has stopped, and protect the fuel cell by operating the selected protection device when the fuel cell has stopped. See claim 1. Further, the controller functions to predict the restart time of the fuel cell based on past information relating to the start time of the fuel cell. See claim 14. Further, the controller functions to compute an energy required when the fuel cell is protected using

Art Unit: 1795

the first protection device, compute an energy required when the fuel cell is protected using a second protection device, and select the one of the first protection device and second protection device which has the lesser required energy. See claim 17. Further, the controller functions to predict a variation of outside air temperature during the stop interval of the fuel cell. See claim 18.

### ***Contact/Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Scully whose telephone number is (571)270-5267. The examiner can normally be reached on Monday to Friday 7:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571)272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/505,226

Page 9

Art Unit: 1795

/S. S./

Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795